Reducing greenhouse gas emissions
from production sites

STMicroelectronics is installing abatement systems in its production sites to reduce perfluorinated compounds emissions (PFCs), which account for most of the company's direct emissions.

Starting date of the project	September 2020
Project Localisation Places of implementation of the project at this stage and targeted geography if replicable.	STMicroelectronics sites in Crolles (Isère), Rousset (Bouches-du-Rhône) and Tours (Indre et Loire), all located in France.
Project objectives Type of climate innovation of the project with a description of the problem/issue addressed	Reduce the direct emissions from ST's production sites by lowering PFC gas emissions, which account for most of the direct gas emissions in the semiconductor industry. This project is part of the carbon neutrality program goals for 2027, which was publicly announced by ST. Find out more at : https://investors.st.com/news-releases/news-release-details/stmicroelectronics-be-carbon-neutral-2027. It also contributes to the Science Based Targets objectives of reducing ST's carbon emissions by 50% between 2018 and 2025. Read more: https://sciencebasedtargets.org/companies-taking-action?sector=Semiconductors%20and%20Semiconductors%20Equipment#table
Detailed project description	To this end, ST has set up PFC abatement systems to treat emissions from the equipment used to etch integrated circuits on silicon. These systems ensure that molecules with a high global warming potential undergo thermal cracking, before being neutralized by physicochemical washing. The objective is to treat 100% of the PFC gases generated during specific industrial processes at the output of each piece of equipment concerned.

Main project's drivers for reducing the greenhouse gas emissions

Reduction levers	Details on the aspects of the project
☐ Energy and resource efficiency (including behaviour)	
☐ Energy Decarbonisation	
☐ Energy efficiency improvements	
☐ Improving efficiency in non-energy resources	
☐ Emissions absorption: creation of carbon sinks, negative emissions (BECCS, CCU/S, ...)	
☐ Financing low-carbon producers or disinvestment from carbon assets	
☒ Reduction of other greenhouse gases emission	Reduction of high-GWP GHG emissions

Emission scope(s) on which the project has a significant impact and quantification of GHG emission reductions per emission scope

	Aspects of the project contributing to the reduction of emissions by emission category	Quantification of associated GHG emissions by emission category Please follow the quantification methodology used in the Afep guidelines.
Reduction of the company's carbon dependency		
Scope 1 *Direct emissions generated by the company's activity.*	Neutralization of PFCs	16,500 t CO_2/year
Scope 2 *Indirect emissions associated with the company's electricity and heat consumption.*		
Scope 3 *Emissions induced (upstream or downstream) by the company's activities, products*		

	<table><tr><td>and/or services in its value chain.</td><td></td><td></td></tr><tr><td colspan="3">Increase of carbon sinks</td></tr><tr><td>Emissions Absorption Carbon sinks creation, (BECCS, CCU/S, …)</td><td></td><td></td></tr><tr><td colspan="3">GHG emissions avoided by the company at third parties</td></tr><tr><td>Avoided Emissions Emissions avoided by the activities, products and/or services in charge of the project, or by the financing of emission reduction projects.</td><td></td><td></td></tr></table> **Clarification on the calculation or other remarks:** The investment project for abatement systems over the period 2021-2025 in France will reduce GHG emissions by 16,500 tCO_2/year in France. This number is the result of complex calculations that depend on the GHG protocol formulas for the use of PFCs in the semiconductor industry.
Modality of verification of the quantification.	**Calculation standard used (ADEME base, GHG protocol, etc.):** The French sites carry out greenhouse gas assessments in accordance with the ADEME method. The sites are ISO14064 certified (certification of GHG emissions). **Verification of the calculation (internal or external):** ISO 14064 certification by TUV
Other environmental and social benefits of the project	Reducing PFC emissions in the semiconductor industry contributes to the following Sustainable Development Goals (SDG): • SDG 9 Industry, Innovation, and Infrastructure: lower GHGs emissions in the manufacturing process of integrated circuits. • SDG 12 Responsible Consumption and Production: lower GHGs emissions in the manufacturing process of integrated circuits. • SDG 13 Climate Action: lower GHGs emissions in the manufacturing process of integrated circuits.
Project maturity level	☐ Prototype laboratory test (TRL 7) ☐ Real life testing (TRL 7-8) ☐ Pre-commercial prototype (TRL 9) ☐ Small-scale implementation ☒ Medium to large scale implementation Remarks: 80% of our program has already been completed. Our targets will be reached by 2025.
Capacity and conditions of the project reproducibility, with associated climate impact mitigation potential	Additional projects planned in Europe and Asia. This initiative is in keeping with the Paris Climate Agreement, the French Business Climate Pledge, and STMicroelectronics' carbon neutrality approach.
Amount of investment made (in €)	Further details will be provided in the near future.
Economic profitability of the project (ROI)	☐ ST (0-3 years) ☐ MT (4-10 years) ☒ LT (> 10 years) **Remarks:** click here to enter the information
Engaged partnerships	To reach the goals of the program, STMicroelectronics has engaged in partnerships with: • Suppliers of abatement systems. • Local sub-contractors related to infrastructures.
Open comments from the project owner	/
More about the project	
Contact the company carrying the project	sustainable.development@st.com
Project URL links	/

Illustrations of the project